DOCUMENT RESUME

ED 441 127 CE 080 138

TITLE	Workforce Development. Symposium 37. [Concurrent Symposium Session at AHRD Annual Conference, 2000.]
PUB DATE	2000-03-08
NOTE	25p.; In: Academy of Human Resource Development Conference Proceedings (Raleigh-Durham, North Carolina, March 8-12, 2000); see CE 080 095.
PUB TYPE	Collected Works - General (020) -- Speeches/Meeting Papers (150)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Adult Education; Adult Literacy; Adult Programs; Basic Skills; College Bound Students; Comparative Analysis; *Education Work Relationship; Employment; Human Resources; Illiteracy; *Labor Force Development; *Literacy Education; *Transfer of Training; *Unemployment; *Welfare Recipients

ABSTRACT

Three presentations are provided from Symposium 37, Workforce Development, of the Academy of Human Resource Development (HRD) 2000 Conference Proceedings. "Unemployment and Low-Literacy among Welfare Recipients: Continuum of Literacy Program Models" (Larry G. Martin) presents a continuum of four types of literacy programs--academic, situated context/cognition, integrated literacy-soft skills, and integrated literacy-occupational skills. It matches them with five employment tiers of welfare recipients: unsubsidized employed, subsidized employed, subsidized unemployed (community service jobs), subsidized unemployed (transitions), and unsubsidized unemployed (homeless). "The Relationship between Learning Transfer System Perceptions and Basic Workplace Skills" (Reid A. Bates, Elwood F. Holton III) reports a study that examined variation in individual level learning transfer system perceptions associated with job-related basic skill differences and found significant differences for employees with math and reading skill levels required for their jobs versus those without. "Survey Evidence from College-Bound High School Graduates: Implications for School-to-Work [STW] and Human Resource Development" (Richard L. Hannah) describes early work patterns, reasons for working, and implications in the context of STW literature and the rethinking of evaluative criteria with respect to HRD. The papers contain reference sections. (YLB)

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2000 AHRD Conference

Workforce Development

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Unemployment and Low-Literacy Among Welfare Recipients: Continuum of Literacy Program Models

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Given the recent federal and state legislative initiatives on welfare reform and workforce development, literacy practitioners are challenged to develop a continuum of programs that provide an appropriate mix of learning opportunities that can assist current and former welfare recipients to both acquire and maintain employment. A continuum of four types of programs is presented and these are matched with six possible employment tiers of current and former welfare recipients.

Keywords: Literacy, Welfare, Curriculum

Introduction

Federal policy initiatives on welfare reform and workforce development, that is, the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of 1996, the Department of Labor's 1997 Welfare-to-Work program (WtW), and the Workforce Investment Act of 1998) have introduced major changes in the practice of both literacy education and human resource development (HRD). When these policies were initiated, most adult literacy programs targeted the development of learners via a traditional academic curriculum. This curriculum allowed low literate welfare recipients a long-term opportunity to complete a GED, high school diploma, or a competency diploma, but it has proved ineffective to quickly assist welfare recipients to obtain and maintain employment. However, as the reform measures have been implemented, they have not only impacted the extent to which low literate recipients will receive government support to attend literacy classes, they have subsequently caused differential effects in the programs themselves.

One of the most visible effects of the reform initiatives is in the patterns of enrollments. Examples of these effects include: declining enrollments from the number of clients placed into mandatory jobs; changes in the types of students likely to enroll, as learners with lower literacy skills are mandated to attend and those with higher skills are placed in jobs; students' motivations for enrolling due to an increase in mandatory vs. voluntary participation; changes in the amount of time, such as the number of hours per week, students have available for literacy study; changes in the time of day, that is day vs. evening hours, students are available to participate; and the potential loss of federal and state funding for literacy services that do not include a work orientation. These reforms target only one segment of the population--welfare students, as opposed to workers, family literacy students, incarcerated low literates, etc.--from which literacy programs draw their students. However, the nature and extent of the reforms are destined to usher in a new era of literacy programming as literacy practitioners and HRD Professionals contemplate the role of literacy in assisting welfare recipients to obtain employment and to advance in the workforce. This paper presents a framework of alternative literacy approaches that could assist practitioners to expand their programmatic offerings to meet a wider variety of needs among current and former welfare recipients. The following topics will be discussed: employment tiers and the literacy needs of recipients, continuum of literacy programs, synthesis of employment tiers with continuum of programs, and conclusion.

Employment Tiers and the Literacy Needs of Recipients

Federal and state legislative initiatives categorize recipients in accordance with their employment placement potential which roughly correlates with the level of literacy needs among current and former welfare recipients. Assuming that participants who lack prior work experience can benefit significantly from an experiential exposure to the world of work, the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) identified both unpaid work experience and subsidized employment as acceptable means to meet the new federal work participation requirements for recipients with either little work experience or low basic skills. However, as the reform measures have been implemented, a continuum of both former and current recipients has emerged:

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Unsubsidized-Employed Workers, Subsidized-Employed Workers, Subsidized-Unemployed Recipients, and Unsubsidized-Unemployed (often homeless) individuals.

Unsubsidized-Employed Workers

These workers are considered "leavers" from the welfare rolls, i.e., they no longer receive cash payments from the government. Brauner and Loprest (1999) analyzed eleven leavers studies that were conducted by ten states. Only studies that clearly described their methodology and reported survey response rates of 50 percent or higher were included. They found that over half of the leavers worked 30 hours or more per week in jobs, such as restaurant/fast food, clerical, or retail sales and services. In general, they did not earn enough to raise their income far above the poverty level. Brauner and Loprest (1999) observed, for example, that in 1997 the poverty threshold for a three-person family with two dependent children was $12,931, the equivalent of full-time (35 hours per week), full-year employment earning $7.39 per hour. However, the average earnings for leavers was estimated to be between $10,000 to $12,000, less than the poverty level for a family of three. Also, over half of leavers' families were still covered by Medicaid, and some leavers continued to receive food stamps. Leavers also relied on various non-government sources of income support, such as family and friends. Although leavers will take time to make the adjustment to a more independent life-style, many of them can still benefit from literacy programs. For example, in Wisconsin, 77.6 percent of leavers did not complete high school (Wisconsin Works Education and Training Committee, 1998). Also, some states, such as Wisconsin, even provide state support for such individuals to return to literacy classes six to nine months after they have left the welfare program. The state will pay for fifty-percent of the child care costs associated with returning to school.

Subsidized Employed Recipients

These individuals experience employment which is usually structured to permit participants to work for private employers. These employers pay subsidized recipients regular wages which are financed out of diverted welfare funds. In the five states studied by Holcomb et al. (1998), that is Massachusetts, Virginia, Oregon, Indiana, and Wisconsin, subsidized employment programs were a seldom used option. However, Oregon has enjoyed considerable employer, legislative, and staff support for its "JOBS Plus" subsidized employment program. In the other states its use was usually limited to a few select areas where an arrangement had been worked out among a few employers. One major barrier to the development of such programs is the difficulty of finding an appropriate fit between the job needs of employers and the needs, interests, abilities, and skill levels of recipients. Also, if recipients have sufficient skills for subsidized employment, they are generally able to find unsubsidized employment. Therefore these individuals would not likely be placed in mandatory literacy training programs, and they appear to share the same literacy needs as unsubsidized employed workers.

Subsidized-Unemployed Recipients

These individuals represent two categories of recipients: those placed in unpaid Community Service Jobs (CSJs) and Transitional recipients.

Community Service Jobs. The unpaid work experiences for these individuals are often structured so that participants work for public and nonprofit employers in exchange for welfare benefits. There is no financial exchange of work for benefits. Holcomb et al. (1998) found that in all five of the states they studied telling recipients that they would be placed in an unpaid work experience position served as a negative incentive to motivate recipients to seek and obtain unsubsidized employment. Although sparingly used because of the administrative and operational challenges associated with operating such programs, especially during periods of strong economic growth and plentiful entry level jobs, Holcomb et al. (1998) observed that the community service providers found the experience with such workers mutually beneficial and were willing to assist participants to succeed in their assignments. However, recipients generally cut their assignments short and rarely remained in a position beyond one or two months. If these efforts failed to result in unsubsidized employment, then these individuals would be strong candidates for mandatory participation in literacy programs to assist their efforts.

Transitional Recipients. These recipients are considered the harder-to-serve individuals who will not qualify for unsubsidized employment without other support services, such as mental health, substance abuse or vocational rehabilitation services, and others. These individuals experience particularly severe personal or family problems, such as substance abuse, a health limitation, depression, or have a child with a chronic medical condition or serious disability. Therefore, more intensive and effective strategies are required to address their needs. Holcomb et al. (1998) identified several steps taken by Oregon to address this population. However, in addition to

their other characteristics, these individuals may also experience mild to severe learning disabilities and thereby require specialized literacy education programming to address their learning needs.

Unsubsidized-Unemployed Individuals

These individuals represent a category of former recipients who left the welfare rolls because they were either cut off as a result of sanctioning or left welfare voluntarily. While none of the studies reviewed indicated how many individuals/families left welfare because of sanctioning, Brauner and Loprest (1999) found that sanctioned leavers had a lower employment rate when compared to non-sanctioned leavers. The employment rate ranged from 39 percent in Tennessee to 53 percent in Michigan and Iowa. Also, in a survey of 62 homeless families residing in a homeless shelter in Milwaukee, Wisconsin, 32 percent indicated that they had been sanctioned at some time since the introduction of welfare reform (Center for Self-Sufficiency, 1999). However, eleven of the twenty sanctioned respondents indicated that their current spell of homelessness was unrelated to the sanctioning.

Given the range of welfare-related low literate learners identified above, traditional academic literacy programs will be hard-pressed to continue to meet their learning needs in the normal way. Successful pre-employment and employment-based educational programs must be designed to work in concert with the providers of other social services and they should include short-term programs that target the specific needs of these learners. Therefore, adult literacy providers must become more creative in their efforts to deliver educational programs that meet the learning needs of current and former low-literate welfare recipients.

Continuum of Literacy Programs

The challenge now is for literacy practitioners to develop a continuum of programs that provide an appropriate mix of literacy programs with varying degrees, that is broad vs. narrow, of context and skills (see Table 1) that can assist current and former recipients to both acquire and maintain employment. In addition to academic programs, three other approaches are currently being considered and/or implemented in efforts to improve literacy instruction, knowledge retention, and students' motivation: situated context/cognition, integrated literacy-soft skills, and integrated literacy-occupational skills programs (Cohen, 1994). This transition from the more traditional "academic" approach represents a significant change not only in the philosophical orientation to teaching literacy skills, but in the entire scope of designing, implementing, and evaluating the literacy effort. This section discusses four types of programs that could constitute the mix of program alternatives available to literacy practitioners.

Table 1
Mix of Literacy Programs Targeting Welfare Recipients

	Broad Context	Narrow Context
Broad Skills	*Academic Programs*, e.g., Basic Skills, GED, competency based, etc.	*Integrated Literacy With Occupational Skills Training*, e.g., welding, machine operation, Certified Nursing Assistant, etc.
Narrow Skills	*Integrated Literacy with Soft-Skills and Life-Skills Training*, e.g., Job Readiness, Family Literacy, etc.	*Situated Context/Cognition*, e.g., Workplace Programs

Academic Approach

The academic approach is the dominant form of adult literacy education. It focuses on the development of a broad base of academic knowledge and skills, such as the ability to read, write, and perform arithmetic operations, that are generalizable to a variety of contexts. It places a premium on "symbol manipulation" where the learner is encouraged to master symbolic rules of various kinds, such as phonics, and mathematical formulas (Resnick, 1987). Based upon the general curriculum of high school, the instructional objectives, course materials, and class instruction of academic literacy programs are organized around the identification, manipulation, and mastery of laws, symbols, such as letters, words, numbers, formulas, and others, and well-defined problems that are

abstractions from contextual situations. In addition, academic programs also value the learner's ability to think independently, that is without the aid of physical and cognitive tools, such as notes, calculators, etc., (Resnick, 1987). Therefore, recipients placed in academic programs, would be taught symbol manipulation and independent thinking skills via a focus on coding and decoding of abstract concepts, for example the solving of word problems in preparation for the GED test.

The planning of academic programs is often conducted by literacy administrators in conjunction with literacy instructors and guided by the curriculum of K-12 schools (Mezirow, 1996). In this view, students learn best in classroom situations via discussion topics, drill and practice exercises conducted in individualized (and small group) sessions with the aid of teacher-made materials, workbook exercises, preplanned goals and objectives, and computer programs (Dirkx and Prenger, 1994). The programs are offered in a wide variety of settings, including high schools, community colleges, community buildings/organizations, homes, and others. Instructors are usually current or former K-12 school teachers employed to deliver the literacy program on a part-time basis. The time-commitment for students range from one week to over three years. At the completion of the program students receive a certificate, such as the GED, High School Diploma, or other credential.

However, there is mounting evidence that academic programs may be inappropriate for those welfare recipients who have the lowest levels of literacy skills. In a study conducted prior to the welfare reform initiatives, Friedlander and Martinson (1996) found that the impacts on receipt of a GED or high school diploma were concentrated among those members of the sample who possessed higher initial literacy levels. The findings suggest that those welfare recipients with lower literacy skills should be exposed to alternative program approaches whereas those with higher skills could be strong candidates for traditional academic literacy programming.

Situated Context/Cognition

The situated context/cognition approach is comprised of an array of curriculum approaches that range from context-based programs to situated-cognition programs. The literature on workplace literacy abounds with examples and models of context-based programs that do not seek to assist learners to generalize beyond the specific context in which the knowledge was taught. Therefore, in the interest of expanding the theoretical options available to practitioners, this section will discuss situated-cognition programs. Although no models or examples were found in either the adult education or training and development literature, these programs would theoretically provide a systematic approach to assist learners to progressively develop their thinking from familiar context-specific knowledge applications, such as a particular job or workplace, to embrace more highly abstract and generalized knowledge applications consistent with the goals of the academic approach.

The situated-cognition approach has gained increasing attention in the K-12 literature as scholars have observed differences in how out-of-school learners, that is every day people and practitioners, and school students reason when they are presented with complex, ill-defined problems. The studies analyzed by Cobb and Bowers (1999) found that different forms of reasoning tended to arise in the context of different practices that involved the use of situation specific tools and are organized around different overall motives. For example, when presented with a "reading" problem, school students would tend to view the problem of learning to read as an end in itself. However, a worker would view reading as an important job skill that is critical to economic survival.

These scholars have observed that the academic approach to teaching and learning artificially separates what is learned from how it is learned and used. They argue that the activity in which knowledge is developed and deployed is not separable from or ancillary to learning and cognition. Rather, the situations in which learning occurs co-produce knowledge through activity (Brown, et al. 1989). Learning is thereby viewed as an activity that is situated with regard to an individual's position in the world of social affairs in non-school settings (Cobb and Bowers, 1999). Brown et al. (1989) identified two assumptions that are central to understanding situat ed knowledge and learning. The first pertains to both learning and tools. Learning how to use tools involves far more than can be accounted for in any set of explicit rules. The occasions and conditions for use arise directly out of the context of activities of each community that uses the tool, framed by the way members of that community see the world. For example, a pair of scissors are indispensable for both barbers and sempstresses, yet each practitioner community has its own rules for the correct utilization of scissors and their role in the work process. For novices of each community, learning and acting are therefore indistinct. Learning is a continuous, lifelong process resulting from acting in situations. In this way, people who use tools build an increasingly rich implicit understanding of the world and of the tools themselves. The second involves learning and enculturation. Enculturation characterizes the process people engage in when they learn to speak, read and write, or become an employee for a specific job. When given the chance to observe and practice, in a particular context, the behavior of members of a culture, people quickly learn the relevant jargon, imitate the behavior, and gradually start to act in accordance with cultural/group

norms which can be extremely complex.

Four arguments are advanced in the literature that suggest education and learning programs for welfare recipients should be situated in context specific environments. First, there is a significant difference between "authentic activity," that is the ordinary practices of a given organizational or group culture, and school activity (Brown et al., 1989). The meaning and purpose of domain specific activities are socially constructed through negotiations among present and past members of a community; therefore, activities which are coherent, meaningful and purposeful to members of this community and culture are authentic. School activity, such as classroom tasks, occur in a schooling culture where successful learning often has little bearing on performance elsewhere. Therefore, such activity is inauthentic and thus does not constitute fully productive learning experiences for individuals who do not have prior mental models of specific work environments.

Second, knowledge is "constructed" and it does not transfer between tasks. Much of what a student learns is specific to the situation in which the learning occurs. Too often there is a mismatch between typical school (or academic) learning situations and "real world" situations, such as the workplace, where learners are expected to display their knowledge (Anderson et al., 1996). For example, the lack of transfer of abstract knowledge taught in isolation from the contexts in which the knowledge will be used suggests that literacy students might perform well in academic English classes, however, they may struggle with the written and spoken forms of English encountered in a particular workplace. Therefore, to be truly skillful in a functional context, learners must develop situation-specific forms of competence. In addition, learners taught via situated cognition would be encouraged to constantly test their knowledge against what they observe (Palincsar, 1989).

Third, learning is inherently a socially shared phenomenon (Resnick, 1987), which occurs in complex social situations, such as work or family. This perspective recognizes that in out-of-school learning situations most mental activities are explored through the use of such knowledge tools as calculators, templates, procedural rules, and others, and knowledge sources, such as other role players in the situation. Therefore, literacy learners should be allowed to utilize the knowledge tools and sources found in typical (or targeted) work environments, and they should be required to display their skills in complex workplace situations. In addition, students learn new materials more efficiently as they use the knowledge of their contextual situations and the knowledge tools and sources of these situations to develop their literacy skills. In this way, education is made more meaningful as this approach elicits greater participation and commitment from learners who need to see the relevance of their learning activities (Keeley, 1991).

Fourth, action is situationally grounded; the potentialities for action cannot be fully prescribed independently of the specific situation (Resnick, 1987). For example, the preparation of an individual for a position as a Nurses Aid cannot be complete with only an abstract discussion of the job context. The individual would need to be exposed to the language and organizational culture of the employment setting, the roles and functions of the people, such as patients, nurses, supervisors, with whom the Nurses Aid interacts, and the job-related terms and situations with which the Nurses Aid contends on a daily basis.

A primary method of teaching via the situated cognition approach is via a *cognitive apprenticeship* (Brown, et al. 1989). This method supports learning in a domain by enabling students to acquire, develop, and use cognitive tools in authentic domain activity. It suggests situated modeling, coaching, and fading whereby teachers or coaches promote learning, first by making explicit their tacit knowledge or by modeling their strategies for students in authentic activity. Then teachers and student-colleagues support students' attempts at doing the task. And finally they empower the students to continue independently, that is by fading. (See Brown et al. (1989) for further details of this method.)

Another important feature of cognitive apprenticeship is its emphasis on collaborative group learning experiences. This process seeks to enculturate learners through social interaction and the circulation of narrative through the conversations of groups of practitioners (Brown, et al., 1989). It is characterized by: a) collective (group) problem solving; b) displaying, reflecting on, and discussing the multiple roles required for carrying out any cognitive task; c) confronting and discussing ineffective strategies and misconceptions; and d) providing collaborative work skills.

Situated cognition programs theoretically hold great promise as an alternative to the traditional academic approach. Short-term, career focused job skill training can be provided via such situated programs to either subsidized or unsubsidized recipients who are either employed or unemployed. Literacy and HRD providers can work directly with employers to develop on-site training opportunities.

Integrated Programs

Critics of the situated cognition approach, (Resnick, 1987; and Anderson, et al., 1996,) argue that situation-

specific learning alone is very limiting, as when familiar aspects of a task change in certain ways unschooled individuals experience considerable difficulty and may fail entirely. They suggest that the extent to which learning should be bound to a particular situational context depends upon the kind of knowledge being acquired. In some cases knowledge can be bound to a specific context by the nature of instruction, for example a process demonstration of word processing skills. In other cases, the extent of contextualization depends on the way the material is studied, such as hands-on problem solving (Resnick, 1987). Therefore, they argue that the integrated approach should embrace elements of both the academic and situated approaches. In the context of literacy programming, it seeks to assist learners to develop a narrow base of skills, for example job search skills, that are generalizable to a broad base of contextual situations, or to develop a broad base of skills, for example traditional academic skills, that are applicable to a specific contextual situation, such as a particular job. Integrated programs attempt to integrate basic skills (academic) preparation with functionally meaningful content. The following arguments suggest that this approach can be viable for the preparation of low literate welfare recipients.

First, the amount of knowledge transfer and the degree to which that transfer is positive depends upon the learning experiences to which the learner is exposed and the relation of the material that is originally learned to the transfer material (Anderson, et al. 1996). Therefore, learners can be trained in classroom situations, such as mastering word processing and other computer-related skills. Those skills will transfer to a variety of employment settings so long as the content is highly related to the knowledge/skill requirements of the applied context. In this view, representativeness and degree of practice are major determinants of transfer from one task to another and from one context to another.

Second, learning transfer varies directly with the number of symbolic (abstract) components that are shared in specific situations (Anderson et al., 1996). The amount of transfer depends on where attention is directed either during the learning program or at the point of transfer. In preparing welfare recipients for success in the workplace, these observations suggest training on the cues that signal the relevance of a job-related skill should probably receive more emphasis in instruction than it typically receives in purely academic programs. A strategy of abstract instruction combined with concrete examples can be a powerful instructional method (Anderson et al. 1996). This method is especially important when the knowledge gained from literacy programs must be applied to a wide variety of frequently unpredictable future tasks.

Third, observing that fewer cognitive resources are required for the actual performance of tasks, and that the capacity for learning is increased when large tasks are separated into smaller elements, supporters of the integrated approach argue that it is better to train independent parts of a task separately (Anderson et al. 1996). Therefore, some of the skills required for context-specific jobs should be separated from the larger task requirements and provided in a classroom setting(Anderson et al. 1996).

Two types of integrated programs are now being developed and implemented to assist current and former recipients: integrated literacy/occupational skills programs and integrated literacy/soft skills training.

Integrated Literacy/Occupational Skills Programs. Typically located in Job Centers, community agencies, and literacy centers, integrated literacy/occupational skills programs attempt to closely simulate the targeted job setting and integrate basic skills education with job skills training. Occupations are targeted that have a demonstrated lack of workers and only twelve to twenty clients are allowed to participate in each program. The programs range from several days to twenty weeks in duration. They are typically designed by administrators in negotiated arrangements with potential employers, social services representatives and other payers, curriculum planners, and other stakeholders.

Integrated Literacy/Soft Skills Training. These programs tend to focus on a narrow set of social and organizational skills which can be applied to a much broader context. The literacy skills required to perform the targeted activities and functions can be taught conterminously with the training efforts designed to assist participants to acquire and develop the required skills. Programs have been developed (or they are being considered for development) on several important topics. For example, the Wisconsin Works Education and Training Committee (1998) recommended several types of training: 1) job seeking skills training to assist with the creation, preparation, development, and updating of resumes; the completion of job applications; and the development of networking skills. 2) Job survival/retention training to assist participants to understand the rules and expectations of employers, qualities that employers desire in an employee, the importance of punctuality, the ability to follow directions, the meaning of teamwork in the workplace etc. 3) Life skills training to enable a parent(s) to participate more fully in the workforce via an enhanced understanding and acceptance of parental responsibilities through strengthening parenting skills, managing family budgets, managing anger, developing interpersonal skills, improving problem solving and decision-making skills, improving time management skills, and others. 4) Motivational training to assist participants to overcome a poor self-image by assisting them to identify their employment-related strengths, setting long-term and short-term life and employment goals, creating an environment of encouragement and support, and

providing mentoring experiences.

Synthesis of Employment Tiers With Continuum of Programs

In this new era of literacy programming, adult literacy and HRD professionals are presented with an unprecedented opportunity to experiment with a number of different approaches to literacy programming. Undoubtedly, some programs are more responsive to the needs of some welfare-related literacy learners while other programs are more appropriate for other learners. Table 2 provides an organizing framework for determining when narrower or broader contexts are required and when attention to narrower or broader skills are optimal for effective and efficient learning among the five types of welfare-related learners.

Table 2
Employment Tiers and Learners Matched With Program Types

Employment Tiers and Types of Learners	Academic	Situated Cognition	Integrated Soft-Skills	Integrated Occupational-Skills
Unsubsidized Employed	Y	Y	?	?
Subsidized Employed	Y	Y	?	Y
Subsidized Unemployed (CSJs)	?	?	Y	Y
Subsidized Unemployed (Transitions)	?	?	Y	Y
Unsubsidized Unemployed (Homeless)	?	?	Y	Y

Y = Yes. Should be a good match between the majority of learners and type of program.
? = Questionable. May not be a good fit between most learners and type of program.

Although the literature is inconclusive regarding the most effective matches of curriculum approaches with category of current and former welfare recipients, it strongly suggested that academic programs tend to be successful with students who have experienced previous academic success. Given that other research has demonstrated a strong correlation between high academic achievement and employment, it is apparent that these programs could provide a significant means for both Subsidized and Unsubsidized Employed Workers to complete a secondary diploma or certification program. Such a credential could provide opportunities for both post secondary education and career development. Also, some recipients in other tiers may also be close to finishing high school or possess other characteristics to suggest they should also pursue academic programs. This option should remain open to such individuals. Additionally the situated cognition programs are untested with adult literacy students, but given their emphasis on the contextual environment, they may be most appropriate either for learners within employment settings, or CSJs.

This program format also suggests that academic programs will be inappropriate (as currently designed and implemented) to serve the short-term literacy and employment needs of those current and former recipients with lower literacy skills. These learners will require different (more innovative) approaches to literacy instruction. Both situated cognition and integrated programs seem to be appropriate for such learners, that is given their low literacy skills and their low level of previous work experience. Therefore, such programs could offer acceptable options for CSJs, Transitional, and Homeless learners.

Conclusion

A literacy provider system that promotes a continuum of programmatic options for current and former welfare recipients requires a range of agency/organizational cooperative and collaborative relationships among adult literacy and HRD providers. In such a system, students should experience a seamless transition in their educational preparation as they move from unemployment to employment and from general academic knowledge to job-specific/context-based training. For example, academic programs can assist learners to obtain their academic credentials in order to pursue postsecondary opportunities, and to certify their knowledge attainment. Programs originating from the integrated approach can utilize the skills and abilities of both literacy specialists and occupational skills and related skills specialists to design short term integrated learning experiences that teach recipients literacy skills that are related to broad based social and organizational skills which are applicable to both a job-related occupation (and or occupational area) and soft-skills. Once they are either employed or engaged in employment-related training, HRD professionals can utilize the situated cognition approach to provide both current and former recipients with narrow, job-related, context-specific instruction regarding their employment responsibilities, team work, workplace norms, and others.

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The Relationship Between Learning Transfer System Perceptions and Basic Workplace Skills

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Research examining the relationship between workplace literacy and training-related factors is virtually nonexistent. This study examined variation in individual level learning transfer system perceptions associated with job-related basic skill differences. Results indicated significant differences in learning transfer system perceptions for employees that had the math and reading skill levels required for their jobs versus those that did not. Findings suggest a complex and little understood relationship between basic skills and learning transfer system perceptions.

Keywords: Learning Transfer, Basic Skills, Workplace Literacy

Workplace literacy refers to the ability of individuals to effectively respond to the literacy demands of the workplace (Gowen, 1992). Workplace literacy skills are the basic skills needed by employees to successfully perform job duties, learn, and apply learning on the job. These include skills such as reading, writing, mathematics, and listening (Department of Labor, 1991). For a number of reasons, the concept of workplace literacy has occupied a place of national and international prominence since the 1980's. For example, workplace literacy levels have been linked to national wealth (e.g., Berryman, 1994; Reich, 1992). Research has also shown that employees with more education earn more (e.g., Altonji, 1992; Levy & Murnane, 1992), that rates of innovation are higher in industries with more educated workers (Bartel & Lichtenberg, 1987), and that firms which invest more in learning experience more innovation (Cohen & Levinthal, 1990), suggesting high levels of workplace literacy may also enhance organizational performance.

In addition, research indicates that workplace literacy skills are so low that they pose a substantial threat to the economic well being of organizations. It is estimated that 10% of American workers are either functionally illiterate or marginally literate (Lund & McGuire, 1990); one in five lack the literacy skills needed to function effectively in work or life (Knell, 1990); and nearly half of all Americans have literacy levels well below what is needed to be competitive in today's economy (National Education Goals Panel, 1994). Workplace literacy levels such as this, when considered in the context of an increasingly competitive global economy, rapid technological change, organizational dynamics (e.g., restructuring, movement to team-based work), and structural changes in the economy (e.g., shift from manufacturing to a service-orientation), have the potential to severely undermine the adaptive capabilities of organizations (National Center on Education and the Economy, 1990; Cappelli & Rogovsky, 1994: Carnevale, Gainer, & Meltzer, 1990).

Given this concern, it is surprising to find that very little direct empirical research has examined the relationship between workplace literacy skills and employee ability to improve performance through learning. From a broad perspective, addressing this question is important because learning is a major means organizations use to improve performance. For example, rising levels of investment in training - estimated at over $60 billion in 1998 (Lakewood Research, 1998) - and increasing concern with concepts such as continuous learning, lifelong learning, the learning organization, and organizational learning – all reflect intensifying organizational commitment to learning as an adaptive, performance improvement strategy.

Baldwin and Ford (1988) pointed to three general foci for transfer interventions; (1) the learners, (2) the learning design, and (3) the organizational context. Basic work skills have not previously been examined as a learner characteristic that might influence trainee's interpretation of the learning transfer system. Understanding the relationship between workplace literacy skills, learning, and learning transfer could help HRD researchers and practitioners develop strategies that organizations facing literacy challenges could use to enhance the pay-off from learning and training. For instance, research may point to the value of profiling jobs, testing, and, where necessary, enhancing the workplace literacy skills of workers prior to investing in other job-related training. Workplace literacy skills may also play a role in employees' decision to participate in training. It is possible, for instance, those employees unable to read at levels required by their jobs may purposefully avoid training as a strategy to conceal

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this weakness. Workplace literacy levels may also be associated with individual readiness to learn in training, expectations about training and its performance improvement value, confidence and ability to apply new learning on the job, perceptions of organizational support for learning, learning transfer, or perceptions about the appropriateness of training design.

Mental ability has been shown to be a predictor of success in training (Ferris, Bergin, & Gilmore, 1986) suggesting employees' literacy level may also influence an individual's capacity to develop and improve performance through learning. At least one study of workplace literacy supports this view. In this study, a large paper-manufacturing firm undertook to determine why a maintenance training program for 1,800 hourly employees was ineffective. Although trainees reported they understood training content at the conclusion of training, when they returned to their jobs they couldn't perform the maintenance tasks for which they had been trained. Further investigation revealed the individuals had difficulty reading, understanding, and, consequently, applying the information contained in training. The conclusion: poor reading skills impaired learning and subsequent job performance (Davis, 1997).

The goal of this exploratory study is to begin to examine the relationship between workers' perceptions of learning transfer variables and job-specific workplace literacy skills. Specifically, the research question posed by this study was:

Research Question: Will employees who have the required levels of job-related basic skills and those who do not differ in their perceptions of learning transfer system factors?

Method

Sample Participants in this study were 1079 individuals employed with a state Department of Transportation in the southern US. This included 319 Mobile Equipment Operators, 178 Highway Foreman, 481 Engineering Technicians and Engineering Tech Supervisors, and 77 Highway Maintenance personnel (Specialists and Superintendents). Subjects in each job category were either chosen at random from a larger population of individuals in that job category or represent the total population for that job category in this organization. Participants were required to attend the data collection sessions but could decline to complete the instruments if they so desired. Of the 1218 individuals selected to participate in the assessment, 1079 (88.5%) completed the instruments.

Procedure The data in this study were collected as part of a needs assessment project conducted to address a number of organizational issues including workplace literacy and training transfer problems. The workplace literacy assessment instruments and the Learning Transfer Systems Inventory (LTSI) (Holton, Bates, Seyler, & Carvalho, 1997) were administered under the guidance of a Needs Assessment Team, led by the researchers, with the assistance of the organization's District Training Specialists. On-site District Training Specialists administered the assessment instruments during the months of January and February 1999.

Independent Variable Measures Data on employee basic skill levels were assessed using two scales from the Work Keys® assessment system. Work Keys is a set of eight criterion-referenced basic skills assessment tests based on the SCANS model. The tests measure an individual's cognitive and interpersonal skills against the proficiency required to successfully perform a specific job. Required proficiency levels are established by profiling specific jobs across the eight skills assessed by the Work Keys® system. Work Keys measures work-related rather than academic proficiencies.

Two Work Keys skills were assessed in this study. The *reading for information* assessment measured an individual's skill in reading and understanding work-related instructions and policies. Employees were tested on their ability to understand reading passages, based on actual demands of the workplace, that were in the form of memos, bulletins, notices, letters, policy manuals, and governmental regulations. The *applied mathematics* assessment measured an individual's skill in applying mathematical reasoning to work-related problems. The assessment required the examinee to set up and solve the types of problems and to do the types of calculations that actually occurred in his/her job. Examinees could use a calculator. A formula sheet was provided that included, but was not limited to, all required formulas. For each assessment, examinees were given 40 minutes to solve 30 multiple-choice problems.

Proficiency levels for these assessments were based on jobs previously profiled by Work Keys that were functionally similar to the jobs examined in this study. To determine if employees who had and did not have the required levels of basic skills for their jobs differed in their perceptions of learning transfer system factors, individual scores for both assessments were dummy coded based on whether the individual met or did not meet the

required proficiency level for his/her job. These variables (pass math, pass read, pass both) were used as the grouping factors in the analyses. The job groups and the proficiency levels required for each are shown in Table 1.

Table 1: Required Math and Reading Levels by Job Group

	Job Group				
	1 Mobile Equip Ops	2 Hiway Foreman	3 Hiway Main Sup	4 Eng Tech (entry)	5 Eng Tech (adv)
Req'd Math Level	3	4	5	5	5
Req'd Read Level	4	4	4	5	6

Dependent Variable Measures Learning transfer system variables were assessed using the Learning Transfer Systems Inventory (LTSI). The LTSI (Holton, Bates, & Ruona, in press), formerly known as the LTQ, measures 16 factors in the learning transfer system which may be barriers or facilitators to learning transfer. The instrument has shown initial evidence of construct and criterion validity (Bates & Holton, 1999; Bates, Holton, Seyler, & Carvalho, in press; Ruona, Holton, Bates, Leimbach, 1999; Seyler, Holton, Bates, Burnett, & Carvalho, 1998). The LTSI is divided into two sections representing two construct domains. For the abbreviated form of the instrument used in this study, the first section contained 46 items measuring 11 constructs representing factors affecting a specific training program. The instructions for this section directed respondents to "think about this specific training program." Constructs included learner readiness, motivation to transfer, positive personal outcomes, negative personal outcomes, personal capacity for transfer, peer support, supervisor support, supervisor sanctions, perceived content validity, transfer design, opportunity to use.

The second section contained another 23 items measuring five constructs. These constructs represent more general factors that may influence any training program conducted. For these items, trainees were instructed to "think about training in general in your organization". Constructs in the second section included transfer effort-performance, performance-outcomes, openness to change, performance self-efficacy, and performance coaching.

Items were designed to measure individual perceptions of constructs, including individual perceptions of climate variables in some cases. Although climate is often used to refer to group-level shared interpretation of organizations, climate can also be an individual level construct, often referred to as psychological climate. James and MacIntyre (1996) noted that it is important to study climate from the individual perspective because people perceive particular climates differently and respond in terms of how they perceive them. Because transfer of learning refers to individual behaviors resulting from learning, it is most appropriate to assess individual perceptions of transfer climate because it is those perceptions that will shape the individual's behavior.

Covariate Measure Employee beliefs about the extent to which an organization values learning and skill acquisition may affect training-related behaviors and attitudes (Kozlowski & Hults, 1987; Noe & Wilk, 1993), including learning transfer system perceptions. To control for this continuous learning culture (Tracey, Tannenbaum, & Kavanaugh, 1995), a construct that assesses the extent to which individuals perceive an organization's culture to be supportive of learning, was added as a covariate. The Tracey et al. (1995) scale was used to assess this factor. It is comprised of 15 items.

Analysis The intent of this study was to examine variation in individual level learning transfer factor perceptions associated with job-related basic skill differences. Two different multivariate analyses of covariance (MANCOVA) were conducted to determine whether individuals who had and did not have required levels of basic skills differed in their perceptions of learning transfer factors. By providing a single test of group differences across all dependent variables, MANCOVA also provides control over the experiment-wide error rate inherent in separate univariate tests. First, a two-way MANCOVA was conducted using "pass math" and "pass read" as the factors. This analysis allowed the interaction between the two factors to be assessed as well as the main effects. Second, a one-way MANCOVA was conducted with "pass both" as the independent variable. This analysis lumped together in one group respondents who passed neither exam or only one exam to compare their perceptions with those who passed both exams. Where significant multivariate effects were found, post-hoc univariate ANOVAs were conducted to determine which dependent variables were different across the groups (Hair, Anderson, Tatham, & Black, 1998).

Results

Table 2 shows means and standard deviations of LTSI variables as a function of test scores for math and reading at or above the required job level (pass) and below the required job level (fail). Also shown are test scores at or above the required level for math and reading together (pass both) and below the required level on one or both (fail 1 or 2). Intercorrelations among the dependent variables and between the dependent variables and the covariate are shown in Table 3. Since the dependent variables are all measures of learning transfer system factors, the significant and often substantial intercorrelations is not surprising.

Table 2: Means and Standard Deviations of LTSI Variables as a Function of Basic Skill Test Scores

	CCult		CVal		LReady		Mtran		OChng		OppUse		Peer		PCoach		PerfSE	
Group	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Pass math	3.42	.62	3.20	.85	3.53	.62	3.68	.65	3.28	.64	3.28	.65	3.48	.68	3.35	.65	3.80	.56
Fail math	3.54	.59	3.43	.77	3.53	.59	3.78	.64	3.16	.61	3.25	.58	3.41	.71	3.36	.65	3.85	.59
Pass read	3.45	.61	3.19	.87	3.52	.62	3.69	.66	3.31	.64	3.28	.64	3.49	.67	3.32	.64	3.80	.56
Fail read	3.49	.60	3.46	.72	3.54	.59	3.76	.64	3.12	.60	3.25	.58	3.40	.72	3.36	.66	3.84	.59
Pass both	3.42	.63	3.17	.87	3.52	.63	3.67	.66	3.30	.64	3.28	.65	3.48	.68	3.31	.66	3.79	.57
Fail 1 or 2	3.53	.58	3.43	.75	3.54	.58	3.78	.63	3.16	.61	3.26	.59	3.43	.70	3.38	.64	3.85	.58

Table 2 (cont)

	PCap		POE		PoNeg		PoPos		SSanc		SSprt		TEPE		TDsgn	
Group	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Pass math	2.98	.66	2.93	.83	3.08	.70	2.89	.87	2.47	.61	3.23	.91	3.75	.59	3.46	.84
Fail math	3.02	.53	3.08	.75	3.24	.67	3.02	.83	2.83	.74	3.32	.89	3.78	.62	3.68	.67
Pass read	2.99	.66	2.97	.82	3.07	.70	2.90	.87	2.46	.60	3.23	.91	3.77	.59	3.47	.85
Fail read	2.99	.52	3.02	.78	3.26	.66	3.01	.83	2.85	.74	3.33	.88	3.77	.63	3.66	.65
Pass both	2.98	.68	2.94	.83	3.06	.71	2.89	.88	2.43	.59	3.21	.92	3.75	.59	3.43	.87
Fail 1 or 2	3.00	.52	3.05	.77	3.24	.65	3.00	.82	2.82	.73	3.34	.88	3.77	.62	3.68	.65

Table 3: Correlation Coefficients for Relations Among 16 LTSI Scales and Continuous Learning Culture

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1CCult	**91**																
2CVal	47*	**89**															
3LReady	29*	36*	**70**														
4MTran	43*	57*	38*	**81**													
5OChgn	54*	26*	13*	20*	**76**												
6OppUse	45*	52*	30*	37*	35*	**69**											
7Peer	66*	45*	23*	42*	42*	40*	**81**										
8PCoach	62*	37*	22*	37*	33*	29*	47*	**70**									
9PerfSE	38*	37*	31*	38*	20*	27*	35*	38*	**80**								
10Pcap	33*	39*	21*	29*	32*	46*	32*	20*	25*	**52**							
11POE	64*	52*	24*	48*	39*	46*	47*	50*	29*	35*	**80**						
12PoNeg	31*	37*	19*	19*	18*	20*	34*	30*	21*	19*	29*	**68**					
13PoPos	40*	38*	24*	37*	25*	30*	37*	36*	24*	28*	51*	44*	**62**				
14Ssanc	-17*	-10*	-05	-09*	-31*	-19*	-14*	-05	-09*	-20*	-16*	-04	-05	**62**			
15SSprt	67*	38*	25*	35*	43*	36*	51*	58*	26*	36*	54*	31*	34*	-18*	**93**		
16TEPE	50*	56*	33*	61*	23*	43*	46*	43*	49*	33*	56*	24*	35*	-11*	38*	**81**	
17TDsgn	45*	69*	43*	56*	24*	44*	44*	41*	42*	34*	46*	25*	32*	-06	38*	55*	**89**

Note: Leading decimals omitted. Coefficient alphas are presented in boldface along the diagonal.
*p ≤ .05

The results of the multivariate and univariate ANOVAs are shown in Table 4. The top part of the table shows the results for the two-way MANCOVA, while the bottom part of the table (below the dashed line) shows the MANCOVA results for the one-way analysis using "pass both" as the between groups factor.

For the first analysis (two factors, "pass read" and "pass math"), t he table shows that the multivariate test of the interaction effect (PM x PR) was not significant (F = .49). This means that the differences across the dependent variables for the individuals who did/did not meet the required math levels are roughly similar to those for individuals who did/did not meet the required reading level. The absence of a significant interaction effect indicates the main effects for reading and math can be interpreted directly. The main effects for both math and reading were significant (F = 2.10 & 2.02 respectively, p ≤ .05). These results indicate that there is a significance difference

across the dependent variables between individuals who met the required math levels and those that did not as well as significant differences between individuals who met the required reading levels and those that did not.

Univariate tests show that those passing math differed in their perceptions on four learning transfer measures: openness to change, peer support, performance coaching and supervisor sanctions. In three of the four, those who failed math had poorer perceptions than those who passed math. Perceptions of performance coaching, however, were slightly higher for those who failed (M = 3.36 vs 3.35). For the reading test, perceptions also differed on four measures: content validity, performance coaching, personal outcomes negative, and supervisor sanctions. Those who failed the reading test perceived greater levels of all four of these measures. However, two of these measures are negative indicators of a supportive transfer climate. First, individuals that did not meet required reading levels perceived a greater likelihood that negative personal outcomes would accrue to them from the application of training. Second, results also indicated that fail read individuals perceived greater levels of negative responses from supervisors and managers (supervisor sanctions) when applying learning from training.

The next analysis was more restrictive. The independent measure (pass both) lumped together all individuals that failed one or two tests and compared them with those who passed both tests. A MANCOVA was conducted with continuous learning culture as the covariate. The main effect for "pass both" was significant ($F = 7.12$, $p \leq .01$). Univariate tests showed that persons who passed both tests had significantly different perceptions on all learning transfer system variables. Interestingly, their perceptions were rated lower on all variables except for openness to change, opportunity to use and peer support.

Table 4: Multivariate Analysis of Covariance and Univariate Analyses of Variance for Basic Skills Tests

	Multivariate		Univariate[b]							
Source	df	F[a]	CVal	LReady	MTran	OChng	OppUse	Peer	PCoach	PerfSE
Cont Lrng Cult	16	72.74*	--	--	--	--	--	--	--	--
Pass Math (PM)	16	2.10*	.01	.21	.19	4.21*	1.52	8.32*	5.77*	.03
Pass Read (PR)	16	2.02*	8.21*	.02	1.01	2.90	.01	.39	4.03*	.18
PM x PR	16	.49	.00	.16	.00	.01	.42	.01	.06	.01
Cont Lrng Cult	16	72.37*	--	--	--	--	--	--	--	--
Pass Both[c]	16	7.12*	90.72*	22.17*	67.15*	132.80*	61.70*	156.70*	174.04*	40.96*

Note: Multivariate F ratios were generated from Pillai's criterion. Wilks lambda, Hotellings trace, and Roy's gcr were also significant.
[a]Multivariate df = 16, 539. [b]Univariate df = 1, 554
[c]Multivariate df = 16, 541 Univariate df = 1, 556
*p ≤ .05

Table 4 (cont)

	Multivariate		Univariate[b]							
Source	df	F[a]	PCap	POE	PoNeg	PoPos	SSanc	SSprt	TEPE	TDsgn
Cont Lrng Cult	16	72.74*	--	--	--	--	--	--	--	--
Pass Math(PM)	16	2.10*	.03	1.16	.18	1.98	5.77*	2.48	.00	1.66
Pass Read (PR)	16	2.02*	.08	.03	3.91*	.03	7.41*	2.96	.02	.92
PM x PR	16	.49	.01	.16	.30	1.23	3.73*	.22	.16	1.26
Cont Lrng Cult	16	72.37*	--	--	--	--	--	--	--	--
Pass Both[c]	22	7.12*	200.56*	32.16*	58.65*	97.12*	34.03*	35.52*	242.96*	78.59*

Note: Multivariate F ratios were generated from Pillai's criterion. Wilks lambda, Hotellings trace, and Roy's gcr were also significant.
[a]Multivariate df = 16, 539. [b]Univariate df = 1, 554
[c]Multivariate df = 16, 541 Univariate df = 1, 556
*p ≤ .05

Discussion

Published research examining the relationship between workplace literacy and organizational training-related factors is virtually non-existent. This study sought to explore whether groups differing in job-related basic skills also differed in their learning transfer system perceptions. Although a few significant differences were found for individuals with and without adequate math skill as well as those with and without adequate reading skills, perhaps the finding of most practical significance emerged in a comparison of groups who passed both exams versus those who failed one or both. The comparison between pass both and fail 1 or 2 showed a significant difference between the two groups across all 16 learning transfer variables.

These results suggest, first, that the effect of basic skill levels may be summative in the sense that individuals who have adequate levels of more basic skills view training and transfer-related variables increasingly

different from those who are able to meet relatively fewer basic skill requirements. Second, the often paradoxical differences in perceptions between these two groups suggest the existence of a complex relationship between basic skill levels and learning transfer system perceptions. For example, in the pass both analysis, the fail 1 or 2 group reported higher levels of motivation-related variables (motivation to transfer, transfer effort-performance expectations, performance-outcome expectations, positive personal outcomes) but greater levels of negative outcomes resulting from the application of training. This group also saw supervisors and managers as both more supportive of transfer (supervisor support) and more negative in their responses to efforts to apply new learning (supervisor sanctions). This may indicate that individuals who do not have adequate basic skill levels may have inflated expectations about the value of training, perceive support for learning, but are less able to transfer new skills and knowledge effectively (perhaps due to learning difficulties) and consequently encounter more negative responses when it comes to the application of learning. The pass both group, on the other hand, perceived greater work group support for learning transfer (openness to change, peer support) and greater opportunities to use new learning (opportunity to use) but less self-confidence in their ability to apply new learning on the job (performance self-efficacy) and less motivation to do so.

It should be noted that some of the mean differences between the groups were small. This study had a very large sample size that provided high statistical power for detecting even small effect sizes. Nonetheless, the ability to test transfer perceptions in a more complex design (MANCOVA) and the large number of significant differences suggests that the findings may have important practical implications.

There is a tremendous need for learning transfer research to focus more on how to diagnose and then actively change and manage effective learning transfer systems. This study addresses one aspect of differences between learners that will affect learning transfer. The magnitude of the workplace literacy problem suggests it has the potential to undermine the ability of individuals and organizations to improve performance through learning. If low-literacy workers do perceive learning transfer systems in qualitatively different ways, then alternative interventions may be needed to influence their learning transfer. In addition, if the workplace literacy skill gap continues to increase, then the potential exists to make changing learning transfer systems even more difficult.

There are also important implications for learning transfer researchers operating in organizational environments with significant numbers of low skill employees. This research suggests that basic work skills have the potential to influence relationships between learning, transfer system perceptions, and job performance. While we can not be sure of the magnitude of the effect, these findings suggest that transfer research in these environments might need to control for basic work skills or risk introducing substantial "noise" into the analysis.

In sum, this study may spark more questions than it answers. One of its key contributions lies in the link it establishes between two construct domains not previously linked in the literature, learning transfer system perceptions and basic work skills. In addition, it clearly suggests that basic work skills have some type of relationship with transfer system perceptions and that the relationship may be a much more complex one than expected. Finally, it suggests the need for new avenues of research to better understand how learner characteristics influence learning transfer systems. Research on learner characteristics has focused heavily on influences during learning events, but very little on transfer systems.

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Survey Evidence from College-Bound High School Graduates: Implications for School-to-Work and Human Resource Development

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This paper reports initial research into the relatively unexplored role of work in the lives of recently graduated high school students. The contribution to the literature is the description of early work patterns, reasons for working, and implications in the context of School-to-Work (STW) literature and the rethinking of evaluative criteria with respect to human resource development (HRD). As such, this paper is a presentation of fresh data that suggest there are important omissions in our understanding of the youth labor market.

Keywords: School-to-Work, Teen Labor Market, Youth Workers

Current wisdom is that formal education will play an increasing role in meaningful employment and sustained employability. The policy that complements this wisdom is government intervention to gear the American economy in spirit and practice for the implementation of programs that incorporate continuous, lifelong, and employment relevant learning. Increased labor market mobility also means that employer investments in individuals require a shorter payback period, underscoring the importance of increasingly sophisticated screening criteria that accurately reflect desirable labor market experiences. These dynamic changes challenge those in the HRD profession to develop and apply more comprehensive knowledge about workers in order to adapt to a blending of education, work, and human capital investment.

A great deal of research, thought, and policy making have been devoted to this new labor market modernity, giving rise to the implementation of School-to-Work programs. While designed to harmonize the labor market from both the demand side (early employer involvement in human resource development via collaboration with the educational system) and the supply side (improving individual career choices and preparation, particularly of high school students), the research basis for policy and program development has relied on incomplete models of applied skill development and related program evaluation. What has in the past been defined as the casual market for high school youth labor has been largely ignored. This is a significant oversight with respect to identifying relevant skills and predictive labor market behaviors.

This paper examines the motivations and behavioral patterns associated with labor market activity of recently graduated high school students. By expanding our understanding of the teen work experience to include the open market perspective with the program (e.g., STW) driven perspective, a more comprehensive theoretical and empirical basis for scientific scrutiny is possible. The limited scope of the data collected in this study does not justify definitive claims, but rather intones forceful suggestion and a committed start to isolating the roots of successful labor market behaviors manifested during the high school years.

If we truly believe that blending work and education is the key to sustaining competitive economic performance, then we must at least revisit the efficacy of the models we have relied upon in order to consider possible improvements. The intent herein is not to offer a competing formal model. The descriptive statistics presented are not sufficiently rigorous for this undertaking. However, by offering insight into a relatively unexplored niche of education-work blending by high school teens perhaps some emerging implications for STW and HRD may be gleaned.

Representative Literature

Historically, the U. S. educational policy has not embraced formal programs that define paths of progressive learning and application in the education and work environment. However, in 1994 the U.S. Congress passed the Schools-to-Work Opportunities Act, that in concept at least moved closer to government intervention in the interest of assuring a viable education-labor market linkage that supports economic growth and development. Yet, there

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remains a sharp contrast of ideas about the usefulness of such policies. On one hand, the thinking is that the relationship between business and education has somehow become dysfunctional and school-to-work programs are one way to remedy this perceived problem (Olson, 1997). Alternatively, economic conservatives deplore the idea that government attempts to legislate decisions that diminish either the role of the parents or the maturing decision making capacity of teens (Wolfram, 1999).

Philosophical disposition aside, we know too little about teenage economic behavior in general and their labor market activity in particular. Between the two idealistic extremes described above are some penetrating practical questions. A few are receiving some attention from researchers. One example is whether the disposition to pre-select STW participants for employment after high school graduation in effect creates a closed market vis-à-vis the traditional competitive market. In other words, do STW participants fare better or worse in employment and career prospects, for example through internships and then employment by the same firm, compared to how they would have fared in an open market without government programs (Fabian, Lent, and Willis, 1998)? Alternatively, we could also pose the question of how these labor market outcomes compared to non-STW participants.

From a different perspective, Gardecki and Neumark (1998) examined the churning and mobility dimensions of early life labor market behavior. They concluded that adult labor market outcomes from the early 20s to mid-30s are mostly unrelated to earlier labor market experiences, which are defined as faster transitions to more stable employment relationships. This conclusion cuts into the logic of STW programs designed to ferment earlier and progressive attachments to career paths in industries, occupations, or employment with specific firms.

A concise rendition of the status of theory about STW by Blustein, Phillips, Jobin-Davis, Finkelberg, and Roarke (1997) concludes that the dearth of research about work-bound youth is disconcerting. They further opine that scholars and policy analysts are drawing conclusions on "... global assumptions about or superficial contacts with work-bound youth; notably absent are the voices of work-bound youth." (p. 2) The broader scope of this condition is identified by Pauly, Koop, and Haimson (1995), who state, "Starting a school-to-work program also requires detailed knowledge about students--their needs, their interests, their goals for the future, and the ways they think about the present... " (p. 67)

This author takes issue with none of these conclusions, but the theoretical and empirical scope is still too narrow. The inclusion of information from college-bound students and work-bound students is necessary for a holistic theory. Furthermore, a shortcoming of all these studies is that the analysis is focused on the post-high school employment, and there is little measurement and less theory about high school students' work behaviors in both the work-bound and college-bound categories.

Following is a summarization of the generally accepted framework of developmental learning as related to employment. First, the U.S. Congress, Office of Technology Assessment (1995) describes the continuum of the STW transition in a progression of work-based learning experiences. This context includes: early grade field trips, middle or early high school job shadowing, early high school community service or volunteer activities (and extracurricular activities), later high school based enterprises, and then part- or full-time work positions, possibly combined with cooperative or apprenticeship programs. Within this spectrum, this paper is primarily focused on the part- and full-time work components. However, as the data will indicate, some of the other factors were manifested in responses.

Second, a framework of learning content was summarized succinctly in the 1991 U.S. Department of Labor, Secretary's Commission on Achieving Necessary Skills (SCANS). A condensed version of what work requires of schools is given below.

Five Competencies

1. Resources: allocating time, money, materials, space, and staff.
2. Interpersonal Skills: teams, teaching and serving others, leading, negotiating, cultural diversity skills.
3. Information: acquiring, organizing, maintaining, and evaluating data; using computers to communicate and process information.
4. Systems: understanding social, organizational, and technological systems, monitoring and correcting performance, and designing and improving systems.
5. Technology: selecting equipment and tools, applying technology to specific tasks, and maintaining and troubleshooting technologies.

Foundations of Competencies

1. Basic Skills: reading, writing, arithmetic and mathematics, speaking, and listening.
2. Thinking Skills: thinking creatively, making decisions, solving problems, seeing things in the mind's eye, knowing how to learn, and reasoning.

3. Personal Qualities: individual responsibility, self-esteem, sociability, self-management, and integrity. (p. v.)

The survey data compiled in this report do not address all the items above, nor do they definitively address any one of them. The summary is provided to serve as a foundation for understanding the breadth of the field of inquiry possible, and where applicable commentary on related factors included in this study are offered.

As a final preliminary, consider the negative tone of the following quote that is representative of the writing on this topic (see also Bailey, 1995, p. 5 and Barton, 1996, p. 137 for other examples). "Recent high school graduates have no such record and information [of competence and reliability] on the student's high school performance... so the entire graduating class appears to employers as one undifferentiated mass of unskilled and undisciplined workers" (Resnick & Wirt, 1996, p. 93). The data in this case study do raise doubt about the empirical basis for the gross assumption that teens have little worthwhile experience to offer. The prospect for error of reliance on this assumption appears to be related to market information imperfections and lack of research.

Most of the remainder of this paper presents survey data describing the pattern of high school student labor market behavior and related variables. This sharply contrasts with the traditional post-high school labor market behavior with which most employers and academics are familiar.

Methodology of This Study

In the summer of 1999 a one-page questionnaire was administered to 2,153 incoming freshmen at Middle Tennessee State University. As such, the chronology of this data collection effort is not strictly from *current* high school students, but as the title of this paper implies, from recent high school graduates. This approach proved considerably more efficient than geographically dispersed data gathering, especially since this was a limited pilot test of the survey instrument.

There were 1,623 returns for a gross response rate of 75.38 percent. The data were isolated to the 17, 18, and 19 year olds in order to ensure the analysis was narrowed to recent high school graduates. Data were all self-reported and covered a range of variables including labor market behavior, reasons for working or not working, level of parentally provided allowances, and perceived impact of working on the allocation of time to study and the impact on grades. This was a pilot study designed to gather initial information for a more concentrated and direct survey of high school juniors and seniors during the 2000 academic year. This latter survey will collect data on both college-bound and work-bound students.

The point of survey administration was the freshman orientation process. Those administering the survey were upper division university students with whom the author extensively discussed the procedure and possible refinements based on the experiences of these students. (A copy of the survey instrument is available upon request.) One of the objectives of this pilot survey was also to gain experience in the nuances of survey design for teen response. Consequently, the survey instrument will be redesigned to incorporate the experiences gained, and in particular to capture information about those students who are not college bound. Therefore, this study is best characterized as a case study, with defensible empirical data, but no pretense for scientific generalization of findings. As an initial effort, the lessons learned in refining the methodology and the survey instrument will prove extremely instructive for replication.

Empirical Findings

This study was initially conceived to explore the factual basis for anecdotal evidence that high school students were engaging in intensive labor market activity. Impetus was also indirectly generated from colleagues asserting that our own university students were working more and spending less time on academic pursuits. The obvious connection between the two is the carryover behaviors of working, college-bound high school students to the university experience. Therefore, the study was not initially designed with specific hypotheses testing as related to SWT or HRD program design. Still, the surprisingly high response rate and rather rich bank of data collected lend themselves to the issues previously raised.

The descriptive statistics in Table 1 illustrate the hours worked measurement. To represent the intensity of student work activity, these statistics omit the "zero hours worked" responses. These observations roughly conform to other widely varying estimates for this age and education cohort. For example, Poczik (1995) asserts that 80 percent of eleventh and twelfth grade students work outside school, and Osterman (1995) reported that 31 percent worked, but 44 percent were in the workforce when those seeking employment were included.

Table 1 reflects the labor market behaviors of academically successful students (defined as college bound) and possible linkages between attributes of college-bound students and a higher probability of career success. Finally, these data indicate a strong tendency of students, beginning during the junior summer, to blend work into the school year, continue that activity through the senior academic year and the summer after. This indicates that through their own labor market initiatives teens are already pre-disposed to the blending of work and school in the context of the continuous learning model that is so highly idealized in the literature.

Table 1
Descriptive Statistics of 17-19 Year Olds' Weekly Work Hours

Total hours Worked during:	Number of Responses	Mean of hours worked	Median of hours worked	Mode of hours worked	Std. deviation of hours worked
Jr. summer	982	31.31	30	40	11.19
Sr. year	1121	20.64	20	20	8.13
Sr. summer	1026	33.19	35	40	11.70

Table 2 describes the reasons given by teens for working. Students were asked to rank their top three choices. Note that for second and third ranked choices, the only appreciable change in the order was the entry into the top three by clothing purchases in third ranked choices, and this variable is arguably correlated with dating and social activities. The motivation to work in order to support vehicle and dating/social activities perhaps best conforms to beliefs reflected in anecdotal evidence from academic colleagues. A bit surprising is the prominence of the "educational savings" response, even for college-bound students. While "developing skills" did not show up as a high proportion, from the STW perspective there is some gratification in that the topic is at least on the radar screen.

Table 2
Highest Ranked Reasons for Working

Reason	Number of responses	Percent of Responses
Vehicle purchase or upkeep	269	28.7
Dating/social activities	225	24.0
Savings for further education	157	16.7
Develop employment skills	57	6.1
Computer, electronic, sports equip.	17	1.8
Independence from parents	93	9.9
Help parents with expenses	23	2.5
Support own family	5	0.4
Clothing, jewelry, cosmetics	54	5.8
Other	38	4.1
Total	938	100.0

These are interesting results in that several measured items do convey a seriousness of these students that undermines the negative tones and gross assumptions about this labor market described above. Even for the vehicle, dating/social activities, and clothing variables, an alternative assumption about the long-term employment implications is plausible (certainly no less gross than the casually undervalued behaviors of the youth labor market). While we older ones may quibble about style, there is an unequivocal argument that success in the labor market at any age is strongly related to mobility, dressing for the part, and getting along socially. This is one example of how a bit of data may recast the interpretation of teen behaviors in a light more favorable to human resource development by recognizing the promise of those behaviors in the context of employment priorities.

The survey also queried students as to why they did not work during high school years. The total number of responses, and responses by category, justify little more than conjecture. However, they are very suggestive of the direction of probative research relevant to STW design and employer considerations. Table 3 summarizes these observations. This inquiry enters some rather murky waters in that compared to compensated labor market activity, even less is understood about the complex mixed motives of parents and teens in response to the allowance subsidy and academic performance. Still, we can observe the relatively small number of responses to lack of employment opportunity ("no job"), and the ever-present competition for time, manifested in the "extracurricular" variable.

Table 3
Reasons for Not Working

Reason	Number of responses	Percent of Responses
Adequate allowance	27	11.5
No job	11	4.7
Grades would suffer	37	15.7
Parents opposed	36	15.3
Chores	7	3.0
Extracurricular activities	103	43.8
Other	14	6.0
Total	235	100.0

The survey data offer additional depth on the allowance, earnings, savings, debt measures, and academic performance of high school teens. With respect to the allowance from parents, of the 1,446 respondents to this question, 29 percent indicated they received no allowance; 54 percent received up to $100 per month; 15 percent received between $101 and $500 per month, and the remaining 2 percent indicating above $500 per month. This author could not find the allowance effect addressed in any of the STW literature. For labor economists the theory and empirical implications of subsidies for labor market behavior are well known, and at a minimum this variable would appear to warrant considerable thought in implications for a segmented population of candidates for STW. As a follow-up note from the continuing progress of new phases of this research, many high school students have remarked to the author that parentally provided debit cards, gas cards, phone cards, and the restricted use of credit cards should be factored into the nature of the subsidy.

The monthly earnings of 1,463 responding high school students were distributed with 13 percent earning up to $100 per month, 19 percent between $100 and $200, 37% between $201 and $500, and 14 percent more than $500 per month. The remainder reported zero earnings for work, an anomaly perhaps reflective of uncompensated work in family establishments, or a survey instrument design flaw. These observations may not debunk the casual nature of the teen labor market, but they do indicate that the economic value derived form that market for the teens is not inconsequential.

Personal savings were also measured, but interpretative caution is also warranted because savings in this context may run counter to economic theory that equates savings to income less consumption. The survey did not identify sources of savings, which might include work-related earnings and/or family indirect subsidies. Only 11 percent of 1,482 responses indicated no savings; 46 percent indicated up to $1,000; 37 percent indicated between $1,000 and $5,000, and six percent reporting above $5,000. Whether derived from one's own earnings or family contributions, these magnitudes still infer planning for the long term, something for which youth are often criticized as lacking. With respect to debt, as expected, a high (85) percent responded they had no personal debt. Nine percent indicated less than $1,000, and the remaining six percent indicated greater than $1,000 in personal debt.

A verifiable measure of academic performance was not undertaken in this project because of student privacy issues and layers of permissions required for access to academic records. The survey instrument did ask for students about the impacts of work on study time and grades. A large majority reported no change for study time or grades, respectively 70 percent of 1,186 responses, and 79 percent of 1,189 responses. Twenty-eight percent did reply that work decreased study time, and 10 percent indicated that grades were adversely impacted. One possible explanation for this seeming inconsistency is the increased maturity of teens in the allocation of time. This theme is frequently repeated in the open-ended responses, which can be accessed online (Hannah, 1999).

Beyond these measures, students were asked to identify whether they were enrolling in the Honors College or one of five other colleges at Middle Tennessee State University. The inference is that the higher admission standards for the Honors College might shed some light on the characteristics of this group of students, relative to the presumed enrollment under standard admission criteria for the other colleges. (Standard admission requires a minimum ACT composite of 20 or a minimum high school GPA of 2.8 on a 4.0 scale. Honors admission requires an ACT composite of 26 or higher, regardless of GPA, or an ACT composite of 20 or higher and a GPA of 3.5 or higher.) Comparisons showed a remarkably consistent picture of students' perceptions of time allocation and academic relationships to working between these two groups, which we might characterize as academically successful (admitted to a university under standard criteria) and academically superior (honors students).

However, a somewhat different picture emerges if the mean hours worked are associated with the impact responses. Clearly, the college-bound honors students are indicated as working fewer hours in each response category. As to whether these few hours of difference is a significant variable in actual academic performance can not be answered on the basis of these descriptive statistics. Still, a reasonable conclusion is that the vast majority of teens do not perceive a relationship between work hours and academic performance, but the quality of this perception may be heavily influenced by the hours worked. The difficulty lies in how to rationalize the non-honors responses, non-responses, erroneously responses, and undecided responses. This is a matter of ongoing refinement of the database but an examination of the data in Table 4 does arouse suspicions with respect to the consistency of honors students working marginally less in almost every category. To argue that superior academic performance may reside in a mere margin of one or two hours per week of reallocated time is too heroic for this author. If there is any argument to be made from these sketchy statistics, it may be that a stronger footing can be found in asserting that, in and of itself, work as measured in this study is no detriment to academic success.

Table 4
Comparison of Standard Admission and Honors College Students' Weekly Work Hours

Group	Number of responses	Mean of responses	Median of responses	Mode of Responses	Standard deviation
Standard Admission					
Jr. summer	811	28.48	30.00	40.00	14.30
Sr. year	845	20.74	20.00	20.00	8.66
Sr. summer	824	30.82	32.50	40.00	14.46
Honors College					
Jr. summer	274	27.72	30.00	40.00	14.02
Sr. year	292	18.47	19.00	20.00	8.46
Sr. summer	282	30.26	30.50	40.00	14.22

Implications for HRD and STW Linkages

Successful and efficient development of the human potential for productive work requires predictability. Historically, employers have used either academic credentials or past work experience as screening devices for selection and human capital investment. The data reported herein strongly suggest that there are significant misconceptions and probably under-evaluations of the work experience and motivations of teens who have worked during their high school years. An important qualification of this argument is the limitations of the data, particularly the absence of comparative data for strictly work-bound students. The assumption that carries the argument is that college-bound students will be more economically successful than their counterparts, and hence a deeper understanding of the earlier traits of this group may guide the refinement of HRD policies and procedures to consider those traits, even for the labor pool of non-college educated applicants or employees. This assumption, coupled to the data presented, also counter the negative tone of scholarly evaluations of youth labor markets. The deeper we look the more substance there is to be found.

As a practical matter the suggested criteria from this study around which recruitment and investment in work-bound students may be built include the following, which are interdependent with early work experience.

- Measures of maturity: time allocation, balance work and grade objectives, desire for independence.
- Ability to develop a long-run view: savings and employment skill development.
- Diverse social experiences: extracurricular activities that include school and non-school commitments.
- Social interaction: dating and social activities.
- Mobility: vehicle.

As a matter of intellectual interest, the role of the allowance and other subsidies is an attractive research target for the future. The interplay of parental generosity and work motivation of teens is an intriguing question in the identification of traits that may be of interest to HRD.

The interdependence of work and education is becoming more complex, and we need better models of predictability of success for human capital investment. For employers, this means developing a more accurate and more holistic picture of work related experiences of high school students. In the hoopla over school-to-work programs and continuous or lifelong learning concepts, we have likely overlooked insights into theory and practice by not sufficiently exploring the teen labor market.

Finally, the linkage between HRD and STW runs deeper than the cooperation between business and education in program implementation. If STW is in fact creating a partially closed market from which the best employment prospects can be creamed, then, taken individually, employers participating in the programs ensure themselves a higher quality labor pool. However, taken as a whole, all employers can not benefit. The identification of desired employment traits (a service of STW program screening) is observed less frequently as all employers dip further into the labor market queue. Furthermore, firms must be of a size to justify the allocation of resources to participate in these programs (hence the consensus in the literature that employer associations are the best avenue with which to build an intersection of HRD and STW).

Idealistically, the interventionist view is that STW programs should extend to cover the entire eligible population. This would theoretically raise the bar of employment qualifications for everyone. Realistically, this is not going to happen. Teens themselves show a proclivity to enter the competitive market because it best accommodates their motivations and choices. A very significant point to be made is whether STW programs can compete with these flexible traits of the open market. Standard evaluation of STW programs tends to focus too exclusively on post-program success or failure, and broader based labor market studies tend to focus on post high school cohorts long past graduation. A more robust body of knowledge is possible by including high school students' work behaviors and motivations. The following list suggests the comparisons around which more research is warranted.

- Qualities of the competitive market that are more appealing to teens than those of STW programs.
- Comparison of employment placement success of STW participants to competitive market participants.
- Labor market behavior modifications (for STW or competitive market) of teens via parental subsidies.

Conclusions

There is always a temptation to read more into one's data than good scholarship merits. In the context of STW or HRD the greatest deficiency in the survey data used in this report lies in the lack of direct measurement of work-bound student behaviors. While future research plans include gathering data directly from high school students, thus allowing a comparison of work-bound and college-bound characteristics, the assertions herein must remain indirect in that college-bound students exhibit traits that employers would also find desirable in work-bound students.

While progressing to the formal modeling stage is tempting for curiosity's sake, the data upon which this paper is based require more refinement (an ongoing process) for meaningful investigation into correlation and causation. The purpose of this paper has not been to test hypotheses, but to suggest hypotheses by describing little explored terrain. These are typical methodological limits of a case study. More formal modeling will proceed once more direct survey data are acquired from high school students.

As a final thought, academics have for the past decade pounded the drums signaling change in the structure and process of labor markets--e.g., mobility, contingent workers, team production, technology, and learning models. Admittedly, the observed behaviors of working high school students may be ephemeral in the long run. However, some of those behaviors may stick, and they may be very different from our standard labor market model predictors, or from the expectations of practitioners in allied HR fields. The single most important message of this paper has hopefully been to open our minds to the suggestion that we know all too little of teen economic behaviors in general,

and teen labor market behaviors in particular. Economically rational policy making by government and firms demands more.

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